

What Is Claimed Is:

1. A process to enable the control of photolithographic feature size on structures having one or more severe non-flat topologies for the purpose of performing successful photolithography thereon, the process comprising the steps

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- a. determining one or more acceptable layout dimensions of the one or more severe non-flat topologies as a function of photolithographic equipment and photoresist thickness employed and conformal depositions;
- 10 b. forming the one or more severe non-flat topologies with said one or more acceptable layout dimensions; and
- c. substantially reducing the severity of the formed one or more severe non-flat topologies.

15 2. The process as claimed in **Claim 1** wherein the step of determining said one or more layout dimensions of the one or more severe non-flat topologies includes comparing of the depth-of-focus of the particular photolithographic equipment and the thickness of a photoresist film applied to the surface of the structure against the severity of the non-flat topologies.

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3. The process as claimed in **Claim 1** wherein the structure is a semiconductor structure and the step of forming the one or more severe non-flat topologies includes etching the semiconductor structure.

25 4. The process as claimed in **Claim 1** wherein the step of substantially reducing the severity of the formed one or more severe non-flat topologies includes the step of applying a conformal layer of material on the structure including over the area of the formed one or more severe non-flat topologies.

30 5. The process as claimed in **Claim 4** wherein the step of applying said conformal layer of material includes applying a plurality of layers of conformal

material on the structure including over the area of the formed one or more severe non-flat topologies.

6. The process as claimed in **Claim 5** wherein one or more of said plurality of layers of conformal material is polysilicon.

7. The process as claimed in **Claim 6** wherein one of said plurality of layers of conformal material is an insulative material.

8. The process as claimed in **Claim 5** wherein said one or more of said plurality of layers are applied in a blanket deposition.

9. The process as claimed in **Claim 1** further comprising the step of applying a layer of photoresist material over said one or more severe non-flat topologies after said filling in step.

10. A structure having a surface for receiving a photoresist film suitable for exposure by photolithographic equipment, the structure comprising: one or more severe non-flat topologies, wherein each of said one or more severe non-flat topologies is formed with layout dimensions determined as a function of operational characteristics of the photolithographic equipment, photoresist thickness, and conformal depositions, and a filler to substantially fill in said one or more severe non-flat topologies.

11. The structure as claimed in **Claim 10** wherein the determination of said layout dimensions is made based upon comparing the depth-of-focus of the particular photolithographic equipment and the thickness of a photoresist film applied to the surface of the structure against the severity of the non-flat topologies.

12. The structure as claimed in **Claim 10** wherein said one or more severe

non-flat topologies are etched topologies.

5 **13.** The structure as claimed in **Claim 10** wherein the structure is a semiconductor structure and said filler is formed of a conformal layer of material on the semiconductor structure including over the area of the one or more severe non-flat topologies.

10 **14.** The structure as claimed in **Claim 13** wherein said conformal layer includes a plurality of layers of conformal material.

15 **15.** The structure as claimed in **Claim 14** wherein one or more of said plurality of layers of conformal material is polysilicon.

15 **16.** The structure as claimed in **Claim 15** wherein one of said plurality of layers of conformal material is an insulative material or a conductive material.

20 **17.** The structure as claimed in **Claim 14** wherein one or more of said plurality of layers is applied in a blanket deposition.

20 **18.** A micro-electro mechanical system including a structure having a surface for receiving a photoresist film suitable for exposure by photolithographic equipment, the device comprising: one or more severe non-flat topologies, wherein each of said one or more severe non-flat topologies is formed with layout dimensions determined as a function of operational characteristics of the photolithographic equipment, photoresist thickness, and conformal depositions, and a filler to substantially fill in said one or more severe non-flat topologies.

25 **19.** The device as claimed in **Claim 18** wherein said structure forms a portion of a mirror system.

30 **20.** The device as claimed in **Claim 18** wherein said structure forms a portion

of a pump system.

21. The device as claimed in **Claim 18** wherein said structure forms a portion of a pressure sensor system.

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22. The device as claimed in **Claim 18** wherein said structure forms a portion of a chemical sensor system.

23. The device as claimed in **Claim 18** wherein said structure forms a portion of an accelerometer system.

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24. The device as claimed in **Claim 18** wherein said structure forms a portion of a medical sensor system.